## **CLAIMS**

1. A compound according to formula I:

$$\begin{array}{c|c}
R^1 & (R^4)_n \\
\hline
 & N-R^3 (I)
\end{array}$$

wherein

 $R^1$  is selected from the group consisting of hydroxy, halo, nitro,  $C_{1\text{-}6}$ alkylhalo,  $OC_{1\text{-}6}$ alkylhalo,  $C_{1\text{-}6}$ alkyl,  $OC_{1\text{-}6}$ alkyl,  $OC_{2\text{-}6}$ alkenyl,  $OC_{2\text{-}6}$ alkylhalo,  $C_{1\text{-}6}$ alkyl,  $OC_{1\text{-}6}$ alkyl,  $OC_{2\text{-}6}$ alkyl,  $OC_{2\text{-}6}$ alkyllaryl,  $OC_{2\text{-}6}$ alkyllor,  $OC_{0\text{-}6}$ alkyl $OC_{2\text{-}6}$ alkyl $OC_{2\text{-$ 

 $R^3$  is selected from the group consisting of: H, C(O)OC  $_{1\text{-}6}$  alkylhalo, C(O)OC  $_{1\text{-}6}$  alkyl, C(O)OC  $_{2\text{-}6}$  alkenyl, C(O)OC  $_{2\text{-}6}$  alkynyl, C(O)OC  $_{0\text{-}6}$  alkylCO  $_{2\text{-}6}$  alkylNR  $_{2\text{-}6}$ 

6alkylhalo, C(S)OC<sub>1-6</sub>alkyl, C(S)OC<sub>2-6</sub>alkenyl, C(S)OC<sub>2-6</sub>alkynyl, C(S)OC<sub>0-6</sub>alkylC<sub>3-6</sub>cycloalkyl, C(S)OC<sub>0-6</sub>alkylaryl, C(S)OC<sub>1-6</sub>alkylOR<sup>5</sup>, C(S)OC<sub>1-6</sub>alkylCO)R<sup>5</sup>, C(S)OC<sub>1-6</sub>alkylCO<sub>2</sub>R<sup>5</sup>, C(S)OC<sub>1-6</sub>alkylcyano, C(S)OC<sub>0-6</sub>alkylNR<sup>5</sup>R<sup>6</sup>, C(S)OC<sub>1-6</sub>alkylNR<sup>5</sup>(CO)NR<sup>5</sup>R<sup>6</sup>, C(S)OC<sub>2-6</sub>alkylNR<sup>5</sup>(CO)R<sup>6</sup>, C(S)OC<sub>1-6</sub>alkylNR<sup>5</sup>(CO)NR<sup>5</sup>R<sup>6</sup>, C(S)OC<sub>1-6</sub>alkylSO<sub>2</sub>R<sup>5</sup>, C(S)OC<sub>1-6</sub>alkylSO<sub>2</sub>R<sup>5</sup>, C(S)OC<sub>1-6</sub>alkylNR<sup>5</sup>(SO<sub>2</sub>)NR<sup>5</sup>R<sup>6</sup>, C(S)OC<sub>1-6</sub>alkylNR<sup>5</sup>(SO<sub>2</sub>)NR<sup>5</sup>R<sup>6</sup>, C(S)OC<sub>1-6</sub>alkylNR<sup>5</sup>(SO<sub>2</sub>)NR<sup>5</sup>R<sup>6</sup>, C(S)OC<sub>1-6</sub>alkylNR<sup>5</sup>(CO)OR<sup>6</sup>;

è

 $R^4$  is selected from the group consisting of hydroxy, halo, nitro,  $C_{1\text{-}6}$ alkylhalo,  $OC_{1\text{-}6}$ alkylhalo,  $C_{1\text{-}6}$ alkyl,  $OC_{1\text{-}6}$ alkyl,  $OC_{2\text{-}6}$ alkyll,  $OC_{2\text{-}6}$ alkyll,

M is selected from the group consisting of =O,  $(CR^5R^6)_m$  and  $(CR^5R^6)_mC(O)$ ;

 $R^5$  and  $R^6$  are independently selected from the group consisting of hydrogen,  $C_{1-6}$  alkyl,  $OC_{1-6}$  alkyl,  $C_{3-7}$  cycloalkyl,  $OC_{3-7}$  cycloalkyl,  $C_{1-6}$  alkylaryl,  $OC_{1-6}$  alkylaryl, aryl, and heteroaryl;

any  $C_{1-6}$ alkyl, aryl or heteroaryl defined under  $R^1$ ,  $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$  and  $R^6$  may be substituted by one or more A;

A is selected from the group consisting of hydrogen, hydroxy, halo, nitro, oxo,  $C_{0-6}$  alkylcyano,  $C_{0-4}$  alkyl $C_{3-6}$  eycloalkyl,  $C_{1-6}$  alkyl,  $C_{1-6}$  alkylhalo,  $OC_{1-6}$  alkylhalo,  $C_{2-6}$  alkylor,  $C_{0-3}$  alkylaryl,  $C_{0-6}$  alkylor,  $OC_{2-6}$  alkylor,  $C_{1-6}$  alkylor,  $C_{1-6}$  alkylor,  $OC_{2-6}$  alkylor, and a 5- or 6-membered ring containing one or more atoms independently selected from the group consisting of C, N, O and S;

m is 1, 2, or 3; n is an integer between 0 and 8, inclusive; or a pharmaceutically acceptable salt or hydrate thereof.

- 2. The compound according to claim 1, wherein n is 0.
- The compound according to claim 2, wherein  $R^3$  is selected from the group consisting of:  $C(O)OC_{1-6}$ alkylhalo,  $C(O)OC_{1-6}$ alkyl,  $C(O)OC_{2-6}$ alkenyl,  $C(O)OC_{2-6}$ alkynyl,  $C(O)OC_{0-6}$ alkyl $C_{3-6}$ cycloalkyl,  $C(O)OC_{0-6}$ alkylaryl,  $C(O)OC_{1-6}$ alkyl $CO)R^5$ ,  $C(O)OC_{1-6}$ alkyl $CO_2R^5$ ,  $C(O)OC_{1-6}$ alkylcyano,  $C(O)OC_{0-6}$ alkyl $CO)NR^5$ R $^6$ ,  $C(O)OC_{1-6}$ alkyl $CO)NR^5$ R $^6$ ,  $C(O)OC_{2-6}$ alkyl $CO)NR^5$ R $^6$ ,  $C(O)OC_{1-6}$ alkyl $CO)NR^5$ R $^6$ , and  $C(O)OC_{1-6}$ alkyl $CO)OR^6$ .
- 4. The compound according to claim 3, wherein R<sup>3</sup> is selected from the group consisting of C(O)OC<sub>1-6</sub>alkyl, C(O)OC<sub>0-6</sub>alkylaryl, C(O)OC<sub>1-6</sub>alkylOR<sup>5</sup>, and (CO)NR<sup>5</sup>R<sup>6</sup>.
- 5. The compound according to claim 2, wherein R<sup>2</sup> is hydrogen or fluoro.
- 6. The compound according to claim 5, wherein M is  $CR^5R^6$ .
- 7. The compound according to claim 6, wherein R<sup>6</sup> in M is H.
- 8. The compound according to claim 7, wherein  $R^5$  in M is selected from hydrogen,  $C_{1\text{-}6}$ alkyl,  $C_{3\text{-}7}$ cycloalkyl,  $C_{1\text{-}6}$ alkylaryl, aryl, and heteroaryl.
- 9. The compound according to claim 8, wherein  $R^5$  is  $C_{1-6}$ alkyl.
- 10. The compound according to claim 8, wherein R<sup>5</sup> is C<sub>3-7</sub>cycloalkyl.
- 11. The compound according to claim 8, wherein R<sup>5</sup> is heteroaryl.
- 12. The compound according to claim 11, wherein heteroaryl is selected from the group consisting of 2-, 3-, and 4-pyridyl; 2- and 3-thienyl; and 2- and 3-furanyl.
- 13. The compound according to claim 8, wherein R<sup>5</sup> is aryl.
- 14. The compound according to claim 13, wherein aryl is phenyl.
- 15. The compound according to claim 1, selected from the group consisting of: 4-[3-(3-Chloro-phenyl)-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester,

- 4-(3-Phenyl-prop-2-ynyl)-piperazine-1-carboxylic acid ethyl ester,
- 4-[3-(3-Cyano-phenyl)-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester,
- 4-(3-m-Tolyl-prop-2-ynyl)-piperazine-1-carboxylic acid ethyl ester,
- 4-[3-(3-Methoxy-phenyl)-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester,
- 4-[3-(5-Cyano-2-fluoro-phenyl)-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester.
- 4-[3-(2-Fluoro-5-methyl-phenyl)-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester,
- 4-[3-(5-Chloro-2-fluoro-phenyl)-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester,
- 4-[3-(3-Chloro-phenyl)-1-methyl-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester.
- 4-[3-(3-Chloro-phenyl)-1-ethyl-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester,
- 4-[3-(3-Chloro-phenyl)-1-isopropyl-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester,
- 4-[1-tert-Butyl-3-(3-chloro-phenyl)-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester.
- 4-[3-(3-Chloro-phenyl)-1-phenyl-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester,
- 4-[1-(3-Chloro-phenylethynyl)-butyl]-piperazine-1-carboxylic acid ethyl ester,
- 4-[1-(3-Chloro-phenylethynyl)-3-methyl-butyl]-piperazine-1-carboxylic acid ethyl ester,
- 4-[1-Benzyloxymethyl-3-(3-chloro-phenyl)-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester,
- 4-[3-(3-Chloro-phenyl)-1-cyclopropyl-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester,
- 4-[1-(3-Chloro-phenylethynyl)-pentyl]-piperazine-1-carboxylic acid ethyl ester,
- 4-[3-(3-Chloro-phenyl)-1-thiophen-2-yl-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester,
- 4-[3-(3-Chloro-phenyl)-1-thiophen-3-yl-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester,
- 4-[3-(3-Chloro-phenyl)-1-furan-2-yl-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester.
- 4-[3-(3-Chloro-phenyl)-1-ethyl-prop-2-ynyl]-piperazine-1-carboxylic acid tert-butyl ester,
- 1-[3-(3-Chloro-phenyl)-1-ethyl-prop-2-ynyl]-piperazine,
- 4-[3-(3-Chloro-phenyl)-1-ethyl-prop-2-ynyl]-piperazine-1-carboxylic acid isopropyl ester,
- 4-[3-(3-Chloro-phenyl)-1-ethyl-prop-2-ynyl]-piperazine-1-carboxylic acid propyl ester,
- 4-[3-(3-Chloro-phenyl)-1-ethyl-prop-2-ynyl]-piperazine-1-carboxylic acid isobutyl ester.
- 4-[3-(3-Chloro-phenyl)-1-ethyl-prop-2-ynyl]-piperazine-1-carboxylic acid butyl ester,
- 4-[3-(3-Chloro-phenyl)-1-ethyl-prop-2-ynyl]-piperazine-1-carboxylic acid 2,2-dimethyl-propyl ester,
- 4-[3-(3-Chloro-phenyl)-1-ethyl-prop-2-ynyl]-piperazine-1-carboxylic acid pentyl ester,

4-[3-(3-Chloro-phenyl)-1-ethyl-prop-2-ynyl]-piperazine-1-carboxylic acid 2-methoxy-ethyl ester,

4-[3-(3-Chloro-phenyl)-1-ethyl-prop-2-ynyl]-piperazine-1-carboxylic acid phenyl

4-[3-(3-Chloro-phenyl)-1-ethyl-prop-2-ynyl]-piperazine-1-carboxylic acid benzyl ester

4-[3-(3-Chloro-phenyl)-1-pyridin-3-yl-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester,

4-[3-(3-Chloro-phenyl)-1-(2,4-difluoro-phenyl)-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester,

4-[3-(3-Chloro-phenyl)-1-(2-methoxy-phenyl)-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester,

4-[3-(3-Chloro-phenyl)-1-(2-chloro-phenyl)-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester,

4-[3-(3-Chloro-phenyl)-1-o-tolyl-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester.

4-[3-(3-Chloro-phenyl)-1-m-tolyl-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester.

4-[3-(3-Chloro-phenyl)-1-(6-methoxy-pyridin-3-yl)-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester,

4-[3-(3-Chloro-phenyl)-1-(2-chloro-pyridin-3-yl)-prop-2-ynyl]-piperazine-1-car-boxylic acid ethyl ester,

Ethyl 4-[3-(5-chloro-2-fluorophenyl)-1-ethylprop-2-yn-1-yl]piperazine-1-carboxylate

Ethyl 4-[3-(3-chlorophenyl)-1-(5-methyl-2-furyl)prop-2-yn-1-yl]piperazine-1-carboxylate

Ethyl 4-{3-(3-chlorophenyl)-1-[5-(methoxycarbonyl)-2-furyl]prop-2-yn-1-yl}piperazine-1-carboxylate

2,2,2-Trifluoroethyl 4-[3-(3-chlorophenyl)-1-(2-furyl)prop-2-yn-1-yl]piperazine-1-carboxylate

Ethyl 4-{3-(3-chlorophenyl)-1-[5-(hydroxymethyl)-2-furyl]prop-2-yn-1-yl}piperazine-1-carboxylate

Ethyl (3S)-4-[(1R)-3-(3-chlorophenyl)-1-(2-furyl)prop-2-yn-1-yl]-3-methylpiperazine-1-carboxylate

Ethyl (3S)-4-[(1S)-3-(3-chlorophenyl)-1-(2-furyl)prop-2-yn-1-yl]-3-methylpiperazine-1-carboxylate

Ethyl (3R)-4-[(1S)-3-(3-chlorophenyl)-1-ethylprop-2-yn-1-yl]-3-methylpiperazine-1-carboxylate

Ethyl (3R)-4-[(1R)-3-(3-chlorophenyl)-1-(2-furyl)prop-2-yn-1-yl]-3-methylpiperazine-1-carboxylate

Ethyl (3R)-4-[(1R)-3-(3-chlorophenyl)-1-ethylprop-2-yn-1-yl]-3-methylpiperazine-1-carboxylate

Ethyl (3S)-4-[(1S)-3-(3-chlorophenyl)-1-ethylprop-2-yn-1-yl]-3-methylpiperazine-1-carboxylate

Ethyl (3S)-4-[(1R)-3-(3-chlorophenyl)-1-methylprop-2-yn-1-yl]-3-methylpiperazine-1-carboxylate

4-[3-(3-Chloro-phenyl)-prop-2-ynyl]-piperazine-1-carboxylic acid tert-butyl ester

4-[1-(Tert-Butoxycarbonylamino-methyl)-3-(3-chloro-phenyl)-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester

4-[3-(3-Chloro-phenyl)-1-triisopropylsilyloxymethyl-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester

Ethyl 4-[3-(3-chlorophenyl)-1-(ethoxymethyl)prop-2-yn-1-yl]piperazine-1-carboxylate

4-[1-Aminomethyl)-3-(3-chloro-phenyl)-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester

4-[3-(3-Chloro-phenyl)-1-hydroxymethyl-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester

4-[3-(3-Chloro-phenyl)-1-methoxymethyl-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester

4-(3-Phenyl-propynoyl)-piperazine-1-carboxylic acid ethyl ester

Ethyl 4-[3-(3-Chloro-phenyl)-1,1-dimethyl-prop-2-ynyl]-piperazine-1-carboxylic acid ethyl ester

4-[3-(3-Chloro-phenyl)-1-ethyl-prop-2-ynyl]-piperazine-1-carboxylic acid methyl ester

4-[3-(3-Chloro-phenyl)-prop-2-ynyl]-piperazine-1-caroxylic acid 2-methoxyethyl ester, and pharmaceutically acceptable salts or hydrates thereof.

16. A pharmaceutical composition comprising as active ingredient a therapeutically effective amount of the compound according to any one of claims 1 to 15, in association with one or more pharmaceutically acceptable diluents, excipients and/or inert carriers.

- 17. The pharmaceutical composition according to claim 16, for use in the treatment of mGluR 5 mediated disorders.
- 18. The compound according to any one of claims 1 to 15, for use in therapy.
- 19. The compound according to any one of claims 1 to 15, for use in treatment of mGluR 5 mediated disorders.
- 20. Use of the compound according to any one of claims 1 to 15, in the manufacture of a medicament for the treatment of mGluR 5 mediated disorders.
- 21. A method of treatment of mGluR 5 mediated disorders, comprising administering to a mammal a therapeutically effective amount of the compound according to any one of claims 1 to 15.
- 22. The method according to claim 21, wherein the mammal is a human.
- 23. The method according to claim 21, wherein the disorders are neurological disorders.
- 24. The method according to claim 21, wherein the disorders are psychiatric disorders.
- 25. The method according to claim 21, wherein the disorders are chronic and acute pain disorders.
- 26. The method according to claim 21, wherein the disorders are gastrointestinal disorders.
- 27. A method for inhibiting activation of mGluR 5 receptors, comprising treating a cell containing said receptor with an effective amount of the compound according to claim 1.